ANDREW CHU

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EDUCATION

University of Waterloo May 2028

Bachelor of Computer Science (Honours) *Waterloo, ON*

EXPERIENCE

Software Engineer Intern Sep. 2025 - Dec. 2025

Alljoined *San Francisco, CA*

- Developed unified infrastructure for multimodal EEG data, saving research and ML teams **30+ hours/week**
- Migrated **2+ million** EEG data trials from live production database to custom lakehouse with **0%** downtime
- Automated internal data labeling system scoring **98%** real-world accuracy, saving **300+** hours of manual work

Software Engineer Intern May 2025 - Aug. 2025

CGI *Markham, ON*

- Developed multimodal RAG system to retrieve information from **500+** internal production guides, accelerating team incident response times by **17%**
- Automated health checks, server restarts, and email notifications, by engineering unified dashboard for remotely executing jobs on **400+** applications and servers with Ansible
- Increased chat response accuracy by **38%** through PEFT fine-tuning a Llama3 model with QLoRA

Technical Lead (Part Time) May 2025 - Aug. 2025

University of Waterloo's Data Science Club *Waterloo, ON*

- Spearheaded user check-in and application portal projects written in Next.js and Express with **1000+** users
- Resolved **15+** development tickets spanning frontend UI enhancements, application submission workflows, and backend database migration
- Implemented email confirmation for password resets and user portal, improving user experience and security

Data Engineer Intern Aug. 2024 - Sep. 2024

Alljoined *Toronto, ON*

- Debugged critical timing issue in data preprocessing by implementing data observability system in Python
- Improved data collection performance by **20x** by refactoring WebSocket script to prevent deadlocking, reducing network latency between EEG headset and compute cluster
- Designed signal processing pipeline for denoising and artifact correction using NumPy, Pandas, and scikit-learn

Full-Stack Developer Sep. 2022 - Jan. 2023

Digitera Interactive *Ottawa, ON*

- Developed "Skule News" project, a mobile school news app to streamline student communication written in Flutter
- Integrated Firebase for authentication, real-time updates, and cloud file storage for secure backend support
- Reduced frequency of in-app crashes by **20%** by resolving **6+** bugs resulting from incorrect Firebase queries

PROJECTS

Replate - Sustainable Delivery App (GenAI Genesis Winner) | *Next, Express, MongoDB, Flask, Cohere, Gemini, Twilio*

- Achieved **AI Eco-Mobility Award** at GenAI Genesis, Canada's largest AI hackathon, among **600+** competitors
- Engineered a meal recommendation system using an evaluator-optimizer agentic workflow with Cohere and Gemini, combining user preferences with restaurant data from the *Too Good to Go* platform
- Utilized Express and Flask backend microservices to process orders and serve live delivery updates via Twilio SMS

chat.andrewchu.ca - Personal AI Assistant | *Transformers, Nginx, PyTorch, mlx-lm, Docker, PostgreSQL, Next, FastAPI*

- Built a personal AI chatbot fine-tuned using mlx-lm library using QLoRA, deployed on a Raspberry Pi
- Cut LLM inference times by **67%** by embedding queries with mxbai-embed-xsmall-v1 and caching LLM answers with HNSW vector similarity search

TECHNICAL SKILLS

Languages: TypeScript, Python, C/C++, Java, Go, C#, CSS, HTML, Bash
Frameworks: Next, React, Express, Flask, Redis, Jest, SvelteKit, Electron, LangChain, MySQL, MongoDB, Supabase
Developer Tools: Azure, WebLogic, Linux, Git, Figma, Docker, Postman, GCP, Nginx